Lead Safety for Remodeling, Repair, and Painting

Module 1 Instructor Notes

Slide 1-1: Module 1 Why Should I Be Concerned About Lead-Contaminated Dust?

- This is the module title slide.
- Announce the module and move quickly to the next slide.

Overview of this module: The table below summarizes the content and teaching methods for this module. This is for your reference. Do not cover this with the participants.

Module 1: Why Should I Be Concerned About Lead Dust?	**1 hour**
➢ Activity: How do we create dust ➢ A little dust goes a long way ➢ Activity: Dust wipe demonstration ➢ Why is dust a problem? ➢ Health risks ➢ What is lead-based paint? ➢ How widespread is LBP? ➢ What is being done? ➢ How do I work lead safe	Key message: Dust is the problem and contractors make dust. By working lead safe, you can make a difference. Notes: This module involves an upfront exercise and then slides. ➢ Exercise: Sweetener packet demo or paper-based exercise (30 minutes). ➢ Slides (30 minutes) Preparing for this module: Have materials ready for the exercise and demonstration. Materials needed: – sweetener packet, dustpan, broom, dust wipe kit. Options: Trainer can replace the interactive sweetener packet exercise with a paper-based exercise in which participants rate different activities by how much dust they create. See Appendix 7 for Optional Exercise #1. Note: Instructor must use one of these two exercises.

Module 1
Why Should I Be Concerned About Lead Dust?

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Slide 1-2: Module 1 Overview

- This module covers the bulleted list of topics on the slide. Review this list with the class participants.

- Module objective. The purpose of this module is to identify and describe the health effects of lead exposure and thereby establish the importance of protecting residents (and workers) from exposure to lead-contaminated dust.

- Upon completion of this module, participants will be able to explain:

    - Why we are concerned with lead-contaminated dust;
    - The health risks of lead to children and adults; and
    - The Federal regulations that affect lead-based paint.

Module 1 Overview

- Why is lead-contaminated dust a problem?
- Health risks and effects of lead?
- What is lead-based paint?
- How many homes contain lead-based paint?
- What is being done about lead-based paint?
- Summary

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Upon completion of this module, you will be able to explain:

- Why we are concerned with lead-contaminated dust
- The health risks of lead to children and adults
- What the government is doing about lead-based paint and what you can do to help

Slide 1-3: How Do We Create Dust?

Use this slide to launch a five-minute brainstorming exercise. The goal of the exercise is for participants to make a connection between the work they do and dust.

1) Tell participants to think of activities they do that create dust. Ask them to write them down, individually or in groups. (Possible answers include: planning, sanding, scraping, drilling, sawing, demolition, etc.)

2) After a couple minutes, stop them and ask them to share their answers.

3) Write their answers on a flipchart or overhead slide. (Option – Participants can write answers on an overhead slide and then present the slide.)

4) Highlight the fact that many common renovating, remodeling, and painting activities create dust.

Optional Hands-On Activity: Another way to achieve this training objective is to have participants do some paint preparation work in class.

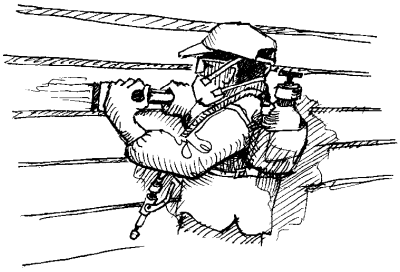
1) Select a small number of participants.

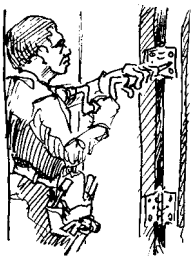
2) Give them pieces of painted wood and assign them tasks such as sanding, planing, drilling, and sawing.

3) When they are done, examine the area. Ask the large group – Did these activities generate dust?

This activity helps reinforce the key message that dust is the big concern, and the goals are to minimize it, contain it, and clean it up effectively.

How do we create dust?





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Note the things that you commonly do during a job that create dust.

Slide 1-4: A Little Dust Goes a Long Way…

For this slide you need a sweetener packet, broom and dust pan, and dust-sampling supplies.

Do the following demonstration to emphasize the points on this slide:

1) Tear open a packet of artificial sweetener and sprinkle it on the floor. (Note: Use artificial sweetener rather than sugar. It is finer.)

2) Ask a few participants to walk through it.

3) Now give a participant a broom and tell him or her to sweep up all the sweetener.

4) Question to the class -- Do they think the sweetener is all gone? Ask them if there is any on the soles of the feet that walked through it. Where is that sweetener now? (probably all over the room).

5) Explain that one way to test the amount of sweetener on the floor is to do a dust wipe.

6) **Demonstrate the dust-wipe sampling process.** (For guidance on how to conduct dust wipe sampling, consult EPA's Lead Sampling Field Guide, which can be downloaded at http://www.epa.gov/lead/Handbk-2A.pdf.)

7) Question for the class: Do you think a lab analysis would show sweetener on the wipe?

8) Now tell the class to imagine that packet was actually full of lead dust. The fact is that a packet of lead that size (one gram) could contaminate several family homes. The math that substantiates this assertion is provided below. You do not need to go into it in detail but use it if questioned.

Option: If this activity is not appropriate for your training, consider using Optional Exercise 1 in Appendix 7.

Sweetener Packet Math *(Use the information below only if asked by the participants.)*

A packet of sweetener contains one gram of sweetener. Imagine that one-gram packet contains 10,000 tiny pieces of sweetener. Each piece would weigh a very small amount, 100 micrograms. (A microgram is a millionth of a gram; a millionth of a packet of sweetener.)

If one of those tiny pieces were crushed and spread over a one square foot area, that would be 100 micrograms per square foot. If the granule were actually lead instead of sweetener, having it spread over a square foot would exceed the EPA lead clearance standard of 40 micrograms per square foot.

Those 10,000 granules in the package could be crushed and spread out over 25,000 square feet and contaminate that entire area - that's the floor space of twelve average houses!

A little dust goes a long way.

- **You can't see it.** Even a floor that looks clean can have lead dust. Only a laboratory test can tell you for sure if an area is contaminated with lead.
- **It's hard to sweep up.** Normal cleaning methods will not pick up all the lead in a work area. Sweeping is not enough. You need to clean with water, detergent, and a HEPA-filtered vacuum to clean up effectively.
- **It travels.** Once the lead is released, it is easily tracked out of the work area. An exterior painting job can contaminate the inside of a home as the dust, chips, and leaded soil are tracked inside.

Slide 1-5: Why Is Dust and Debris a Problem?

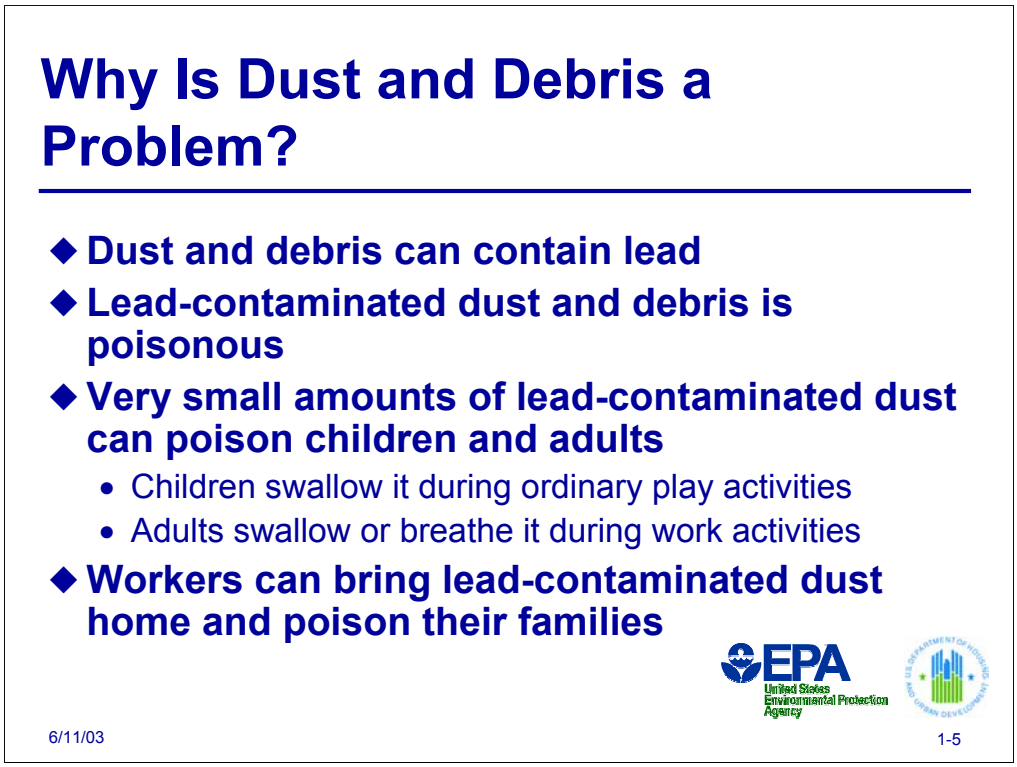
- Review the notes beneath the slide.

- Highlight the following points:

    - Tiny amounts of lead can be extremely harmful.
    - If dust contains lead, it can poison workers, residents, and children.
    - Workers may bring home lead-contaminated dust in their vehicles and on their clothes and shoes and expose children and other adults to lead-contaminated dust.
    - Lead particles are often so small that you cannot see them, and yet you can breathe or swallow them.
    - Children often inhale or swallow lead-contaminated dust during normal hand-to-mouth activities.
    - Adults can swallow or breathe dust during work activities.

- **Optional:** Pass around a laminated paint chip to show the amount of lead-based paint it takes to poison a child.

✓ **Emphasize that if proper precautions are not taken prior to or during jobs that generate dust, workers, residents, and children may become lead-poisoned.**



Dust and debris from renovation, remodeling, repair, and painting jobs in pre-1978 housing may contain lead

- Pre-1978 paint may contain lead.
- Renovation, repair, and painting jobs disturb paint that may contain lead. Any activity involving surface preparation, such as hand-scraping, power sanding, the use of heat guns, and open flame burning, can generate lead dust or fume. More complicated tasks such as removing building components and demolishing walls also can create a lot of dust.

Small amounts of lead-contaminated dust can poison

- A tiny amount of lead can be extremely harmful.
- Lead particles are often so small that you cannot see them, and yet you can breathe or swallow them. Smaller dust particles that are inhaled or swallowed are more easily absorbed by the body than larger particles, and can therefore cause poisoning more easily.

Lead-contaminated dust is dangerous to children and adults

- Lead particles in dust or fumes may be breathed or swallowed by children, residents, and workers.
- Through normal hand-to-mouth activities, children may swallow or inhale dust on their hands, toys, food, or other objects. Children may also ingest paint chips.
- Adults can swallow or breathe dust during work activities.
    - When workers perform activities such as scraping and sanding by hand or use a power sander or grinding tool, it creates dust. These particles get into the air that they breathe.
    - If workers eat, drink, smoke, or put anything into their mouths without washing up first, they may swallow lead.

Slide 1-6: Health Risks of Lead

- This slide and the next cover similar points, so review both slides before presenting to the class to be sure you make the necessary points appropriate for each slide.

Health Effects in Children

- Children, particularly children under age 6, are most at risk from small amounts of lead.

- For children, the major route of entry of lead into the body is through ingestion of lead dust by normal hand-to-mouth contact as they swallow dust from their hands, toys, and other things they put in their mouths.

- Children's bodies absorb a much greater percentage (50%) pf the lead that they ingest or breathe, compared to adults (10%).

- In children, lead can cause:

    - Nervous system and kidney damage.
    - Learning disabilities, attention deficit disorder, and decreased intelligence.
    - Speech, language, and behavior problems.
    - Poor muscle condition.
    - Decreased muscle and bone growth.
    - Hearing damage.

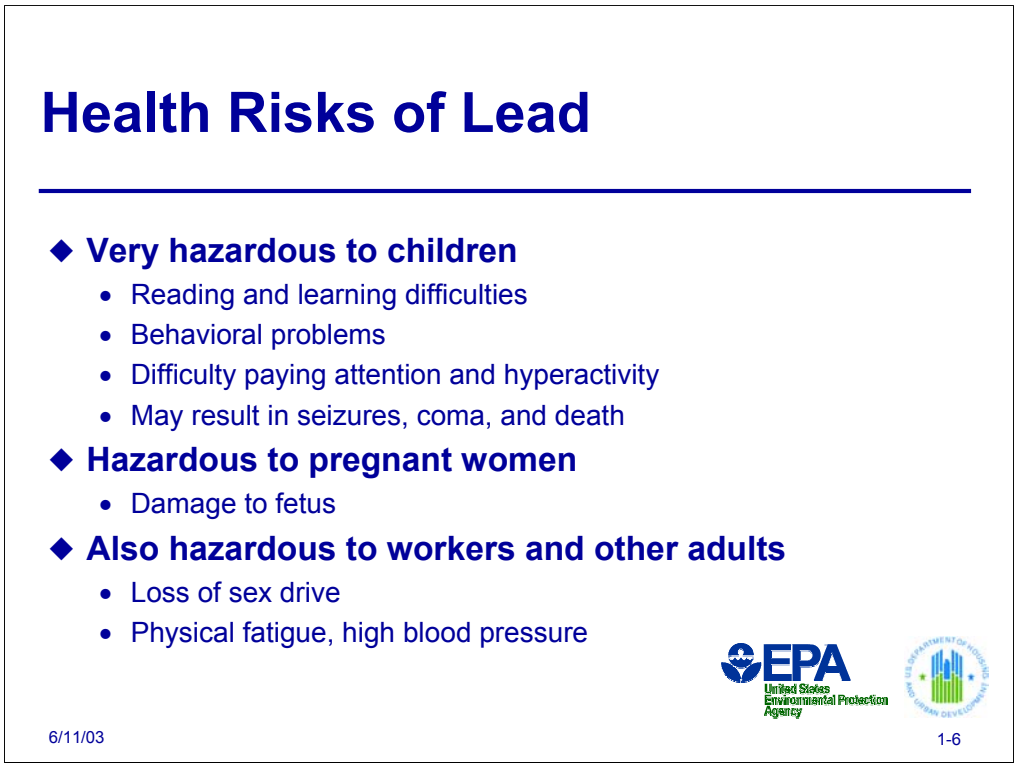
While low-lead exposure is most common, exposure to high levels of lead can have devastating effects on children, including seizures, unconsciousness, and, in some cases, death.

Health Effects in Adults

- Emphasize that adults the major route of entry of lead into the bodies of adults is through inhalation (breathing) of leaded dust.

- In adults, lead can cause:

    - Increased chance of illness during pregnancy.
    - Harm to a fetus (unborn child), including brain damage or death. (Note: Lead does not get in breast milk.)
    - Fertility problems in men and women.
    - High blood pressure.
    - Digestive problems.
    - Nerve disorders.
    - Memory and concentration problems.
    - Muscle or joint pain.



Children, particularly children under six, are most at risk from small amounts of lead

- Children are at a greater risk than adults because, during normal and frequent playing or hand-to-mouth activity, children may swallow or inhale dust from their hands, toys, food, or other objects.
- In children, lead can cause:
  - Nervous system and kidney damage.
  - Learning disabilities, attention deficit disorder, and decreased intelligence.
  - Speech, language, and behavior problems.
  - Poor muscle condition.
  - Decreased muscle and bone growth.
  - Hearing damage.

Among adults, pregnant women are especially at risk from exposure to lead

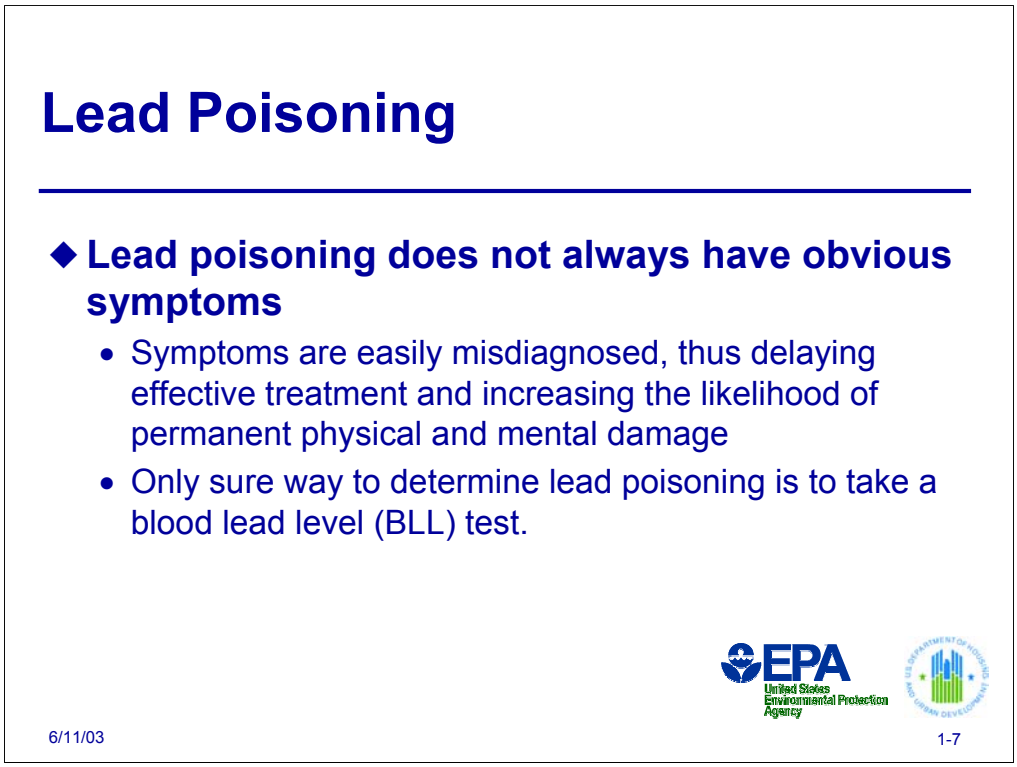
- Changes in a woman's body during pregnancy may cause lead stored in her bones to be released into her blood.
- Lead can then be passed from the mother to the fetus. Lead poisoning can cause:
  - Miscarriages
  - Premature births
  - Low birth weight

Health effects of lead in adults include

- Fertility problems in men and women.
- High blood pressure.
- Digestive problems.
- Nerve disorders.
- Memory and concentration problems.
- Muscle or joint pain.

Slide 1-7: Lead Poisoning

- Lead poisoning often has no symptoms.
- Testing a person's blood is the way we measure exposure to lead.
- The most common way to measure the amount of lead in blood is the Blood Lead Level (BLL) test.
- It is not necessary to describe the two tests listed below to participants. The information is provided for your purposes in case of questions.
- The point to emphasize is that even small amounts of lead in the blood are cause for concern.
- The BLL test:
    - Measures the amount of lead that is circulating in your blood.
    - Tells you about your exposure to lead in the last 2-3 weeks.
    - Does not tell you the total amount of lead in your body.
    - Does not tell you if any long-term damage has occurred.
    - A blood lead level above 10 µg/dl is not safe for children or for women during pregnancy. A level of 39 µg/dl or less may mean that damage to your body is occurring, even if you have no symptoms. A level of 40 to 49 µg/dl means that serious health damage may occur. A level of 50 µg/dl or greater means that severe health damage is likely, may be permanent, and may occur quickly.
- A different, less common, test is the Zinc Protoporphyrin (ZPP) test. The ZPP test:
    - Indicates the effect of lead exposure over the previous 3-4 months.
    - The test can measure damage to a person's blood-forming system.
    - Does not tell you the total amount of lead in your body.
    - Does not tell you if any long-term damage has occurred.

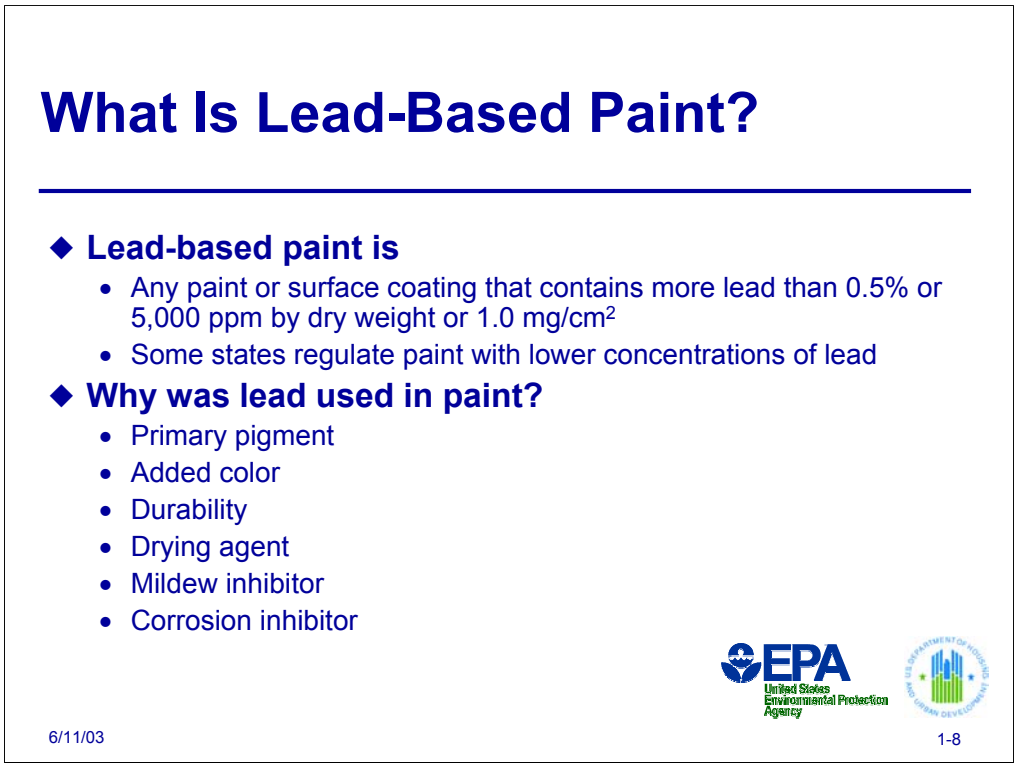


Lead poisoning does not always have obvious symptoms

- Lead poisoning often has no obvious symptoms, so symptoms are frequently attributed to other causes.
- Specific symptoms that people with lead exposure sometimes complain of include:
  - Headache
  - Stomach ache
  - Irritability
  - Fatigue
  - Loss of appetite
  - Pain in joints
- Because many symptoms are vague or similar to flu symptoms, parents may not get immediate medical attention for their children. This is critical for young children. The longer lead remains in the body of a young child, the higher the risk of permanent damage.
- The best way to determine if lead is present in the body is by testing a person's blood.
- We measure the amount of lead in blood by μg/dl, a very small unit of measurement. The Centers for Disease Control has designated 10 μg/dl a "level of concern" but even lower levels may be harmful.

Slide 1-8: What Is Lead-Based Paint?

- The purpose of this slide is to provide the definition of “lead-based paint.”
- Review the notes beneath the slide and emphasize that paint with lower concentrations of lead can cause health problems.



Lead-Based Paint

- Lead-based paint is any paint or other surface coating that contains lead equal to or greater than than 0.5 percent or 5,000 parts per million by weight or 1.0 milligram per square centimeter (mg/cm^2) as measured by laboratory analysis or X-ray fluorescence (XRF).
- Paint with concentrations of lead lower than the standard definition above can still cause health problems.

Some states regulate paint with lower concentrations of lead

- You should check with your state health department to see if the state has requirements that are more stringent than the Federal requirements.

Why was lead added to paint?

- Lead was added to paint for color and durability. Lead-based paints stood up to wear and tear, temperature and weather changes, and resisted mold and mildew in moist areas.
- Before the 1950's concentrations of lead in paint were as high as 50 percent by weight. From about 1950 to 1973, the concentration of lead in paint was reduced as other pigment materials became more popular.
- In addition to being added to paint, lead was added to all surface coatings.

Lead-based paint was banned from residential use in 1978

- In 1978 the Consumer Products Safety Commission banned the sale of lead-based paint for residential use. In practice, this means that homes built in 1978 could still have used lead-based paint because existing supplies of paint containing lead would still have been available.

Slide 1-9: How Widespread is Lead in Housing?

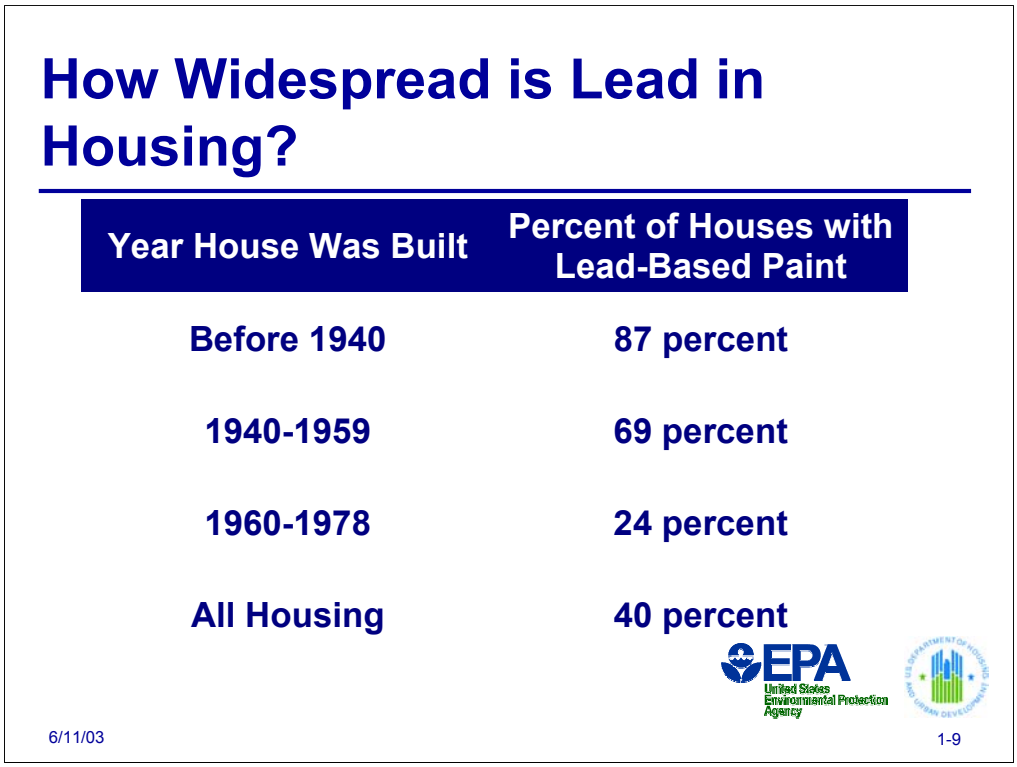
Key message of this slide: Pre-1960 housing contains significant amounts of lead-based paint. Homes built between 1960 and 1978 may contain significant amounts of lead-based paint, but at a declining rate.

- Emphasize that pre-1978 housing should be assumed to contain lead-based paint. Additionally, note that lead-based paint under new paint is still a problem and will create lead-contaminated dust and debris.

- Highlight that approximately 38 million homes contain some lead-based paint, according to the HUD Report on the National Survey of Lead-Based Paint in Housing, 2001.

- Homes built before 1950 may contain significant levels of lead-based paint. Explain that many homes built before 1978 may contain some lead-based paint. Participants should assume that any house built in 1978 or earlier contains lead-based paint unless the house has been tested for lead by an EPA or State-certified risk assessor or inspector and the results indicate that the house does not contain lead-based paint.

- Emphasize that pre-1950 housing is likely have lead-based paint on the exterior and interior. After 1950 and up through 1978, there was a decline in the use of lead-based paint in the interior of housing; however, it is likely that it will be present on the exterior of housing. Lead paint on the exterior of housing could result in soil contamination with lead, making it easy for dirt and dust from around the house to blow in or be tracked into the home. Children also are more likely to play in the dirt near the house and thus be exposed to lead contaminated soil, dirt, and dust. After 1978, lead-based paint is not likely to be found in the interior or exterior of housing.



- **Source of data in table above:** *HUD Report on the National Survey of Lead-Based Paint in Housing,* 2001.

Homes built in 1978 and earlier

- Approximately 38 million pre-1978 housing units may contain paint that meets the Federal definition of "lead-based paint" (Source: *HUD Report on the National Survey of Lead-Based Paint in Housing,* 2001).
- Play it safe. You should assume that any house built in 1978 or earlier contains lead-based paint unless the house has been tested for lead and the results indicate that the house does not contain lead-based paint.
- Components most likely to have lead include windows and doors (interior and exterior) as well as outside walls and porches.

Homes built before 1960

- Homes built before 1960 are more likely than homes built after 1960 to contain higher concentrations of lead and to have deteriorated paint surfaces. In the 1950's paint companies began to use less lead.

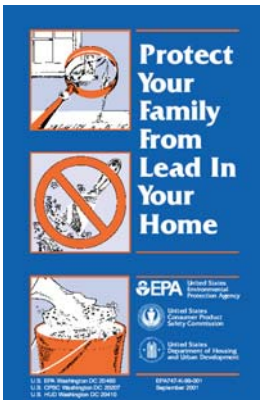
Slide 1-10: What is Being Done About Lead?

For this slide, have a copy of the blue "Protect Your Family Brochure" on hand.

- Review the notes beneath the slide.
- Highlight the following:
    - Lead was banned from residential use in 1978. This is why 1978 is the critical cut-off date.
    - The Pre-Renovation Education Rule (PRE) requires contractors to distribute a pamphlet to clients in pre-1978 homes. This is the law. (See details in the notes under this slide and in Appendix 5.)
    - Show the "Protect Your Family" pamphlet. (Note that it is available in English, Spanish, and Vietnamese. Download these pamphlets on the Web at http://www.hud.gov/offices/lead/disclosurerule/index.cfm#forms or call 1-800-424-LEAD.)
- Some clients will have already seen this pamphlet. The disclosure rule requires that sellers and landlords give it to buyers and tenants.

What Is Being Done About Lead?

- **Ban in Residential Housing**
  - Lead-based paint was banned from residential use in 1978
- **Pre-Renovation Education Rule**
  - Contractors must distribute a pamphlet (See Appendix 5).
- **Disclosure Rule**
  - Buyers/renters receive information about lead in their homes
  - They can share this information with contractors



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Lead-based paint was banned from residential use in 1978

- This means that homes built after 1978 are unlikely to have lead-based paint in them. Some states may have banned it earlier.

Pre-Renovation Education Rule (PRE)

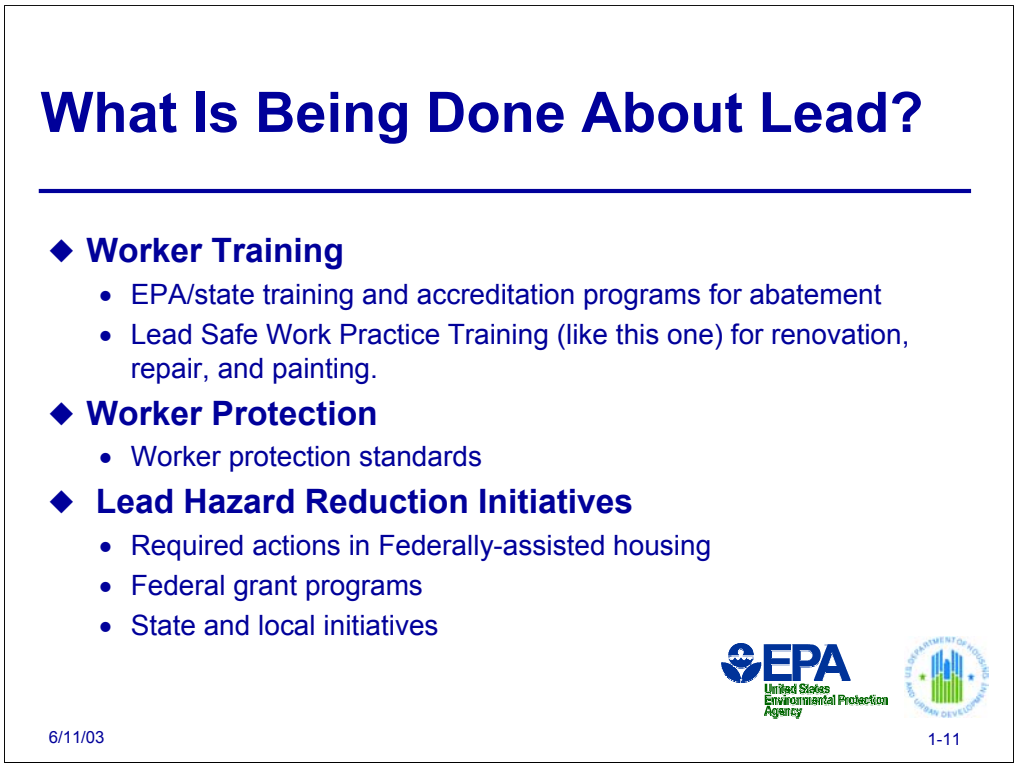
- This EPA regulation requires that contractors distribute a lead hazard information pamphlet to residents of pre-1978 housing before they begin any renovation or remodeling activities. For copies of the required lead information pamphlet, *Protect Your Family from Lead in Your Home*, call the National Lead Information Center at 1-800-424-LEAD. Note: The pamphlet is available in English, Spanish, and Vietnamese.
- The PRE requires written acknowledgment from the client that he or she has received the pamphlet. Alternatively, the contractor can send the pamphlet by certified mail. Contractors should keep this documentation in their files.
- The PRE does not apply to non-residential dwellings, child-occupied facilities, dorm rooms, studios, or housing for the elderly.
- The PRE does not apply to jobs that involve less than 2 sq. ft. of paint per component.
- **Appendix 5** has additional information on the PRE, its requirements, and its exemptions.

Disclosure Rule

- HUD and EPA's disclosure rule requires sellers and landlords to provide the same pamphlet that the PRE does (*Protect Your Family from Lead in Your Home*) and to tell prospective buyers and renters about any known lead-based paint and/or hazards in the dwelling. Because of the disclosure rule, your client may have some information about lead in his/her home. Ask for it.

Slide 1-11: What Is Being Done About Lead?

- Review the notes at the bottom of this slide.
- Highlight the following:
    - Specialized training is required for abatement supervisors and workers. EPA and the States have training and accreditation programs.
    - This training is also part of a national initiative to train people. While voluntary, it provides critical information to people who need it – contractors and their personnel.



Worker Training

- EPA has training requirements for people involved in lead abatement (i.e., the permanent removal of lead). This course does not qualify you to perform abatement.
- This training is one of several trainings on Lead Safe Work Practices. It trains you to work safely with lead in standard renovation jobs and it also qualifies you to work in Federally assisted housing or Federally owned housing being sold, as described below.

Worker Protection

- OSHA has a lead in construction standard which outlines worker protection requirements. Your employer should be aware of these. For more information, visit www.osha.gov/Publications/osha3142.pdf.

Lead Hazard Reduction Initiatives

- If you work in Federally assisted housing, certain actions are required to address lead hazards. In these cases, the workers must have proper training. See Appendix 3 for more information on the Federal requirements for worker training and lead hazard reduction in federally assisted housing.
- HUD has a grant program to state and local governments for funding lead hazard reduction activities.
- Check with your states and localities to find out if there are any local programs (which may be State or Federally funded) that are designed to address lead hazards.

Slide 1-12: How Do I Work Lead Safe?

- Use this slide to transition to the next modules. It shows participants what they must do in a renovation, remodeling, or maintenance job to work in a lead safe manner. The rest of this course will follow these steps in detail.

- Remind them of 3 types of jobs discussed the Intro chapter (Slide 7) and refer them to Appendix 1. The flowchart in this appendix is a useful tool for determining if lead safe work practices are recommended or required in any given job.

- Explain that if the property where the work will be performed receives housing assistance (Federal or State), contractors need to check whether there are specific lead safety requirements that must be met.

    - Supervisors should make this determination and find out about the requirements.

    - Workers need to check with their supervisors to see if additional requirements apply. If work changes during the course of a job, workers need to check with their supervisor to make sure that the changes will meet the lead safety requirements. Remind them that if a job involves required abatement activities, this work must be done by a certified abatement contractor.

How Do I Work Lead Safe?

- **Follow the work practices shown during this training**
- **Plan your work using the chart in Appendix 1 to determine if Federal or State requirements apply to a job.**
- **Properties that receive housing assistance**
  - Ask the agency providing the assistance about lead safety requirements.
- **Jobs involving lead abatement**
  - Tell the owner that a certified lead abatement contractor must perform those activities.

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How do I work lead safe?

The rest of this course will discuss the practices you need to follow to work lead safe. Also see Appendix 1 for a helpful resource.

Slide 1-13: Now You Know

Reiterate the three key points from this module – you may want to do this as a discussion by asking the participants the following questions:

Q: Why are we concerned with lead-contaminated dust?

A: We are concerned about lead-contaminated dust because standard work practices tend to create a lot of dust. If the painted surfaces being worked on contain lead-based paint, this work can generate dust that can poison workers and residents.

Q: How does lead get into children and adults, and what are the health risks of lead?

A: Adults tend to inhale lead-contaminated dust, while children tend to swallow lead-contaminated dust. Either way, lead-contaminated dust can cause significant health problems for both adults and children.

A: Adults: loss of sex drive, high blood pressure, and damage to kidneys, reproductive organs, and the circulatory system. Pregnant women are susceptible to miscarriages, low birth- weight babies, and premature births.

A: Children: Irreversible brain, nervous system, and organ damage that can cause reading and learning difficulties in school, behavioral problems, and difficulty paying attention and hyperactivity.

Q: What is being done about lead?

A: It is no longer used in residential housing.

A: Workers are being trained to work safely.

A: Abatement workers are trained and certified by the State.

Emphasize that proper set-up and containment, work practices, and clean-up techniques leave less lead-contaminated dust than standard work practices and, therefore, are safer than standard work practices.

Now You Know

- Why we are concerned with lead-contaminated dust
- The health risks of lead to children and adults
- Some actions taken to address lead-based paint

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The modules in the rest of the course describe how proper set-up and containment, safe work practices, and clean-up techniques leave less lead-contaminated dust and debris than standard renovation, remodeling, and painting work practices.